

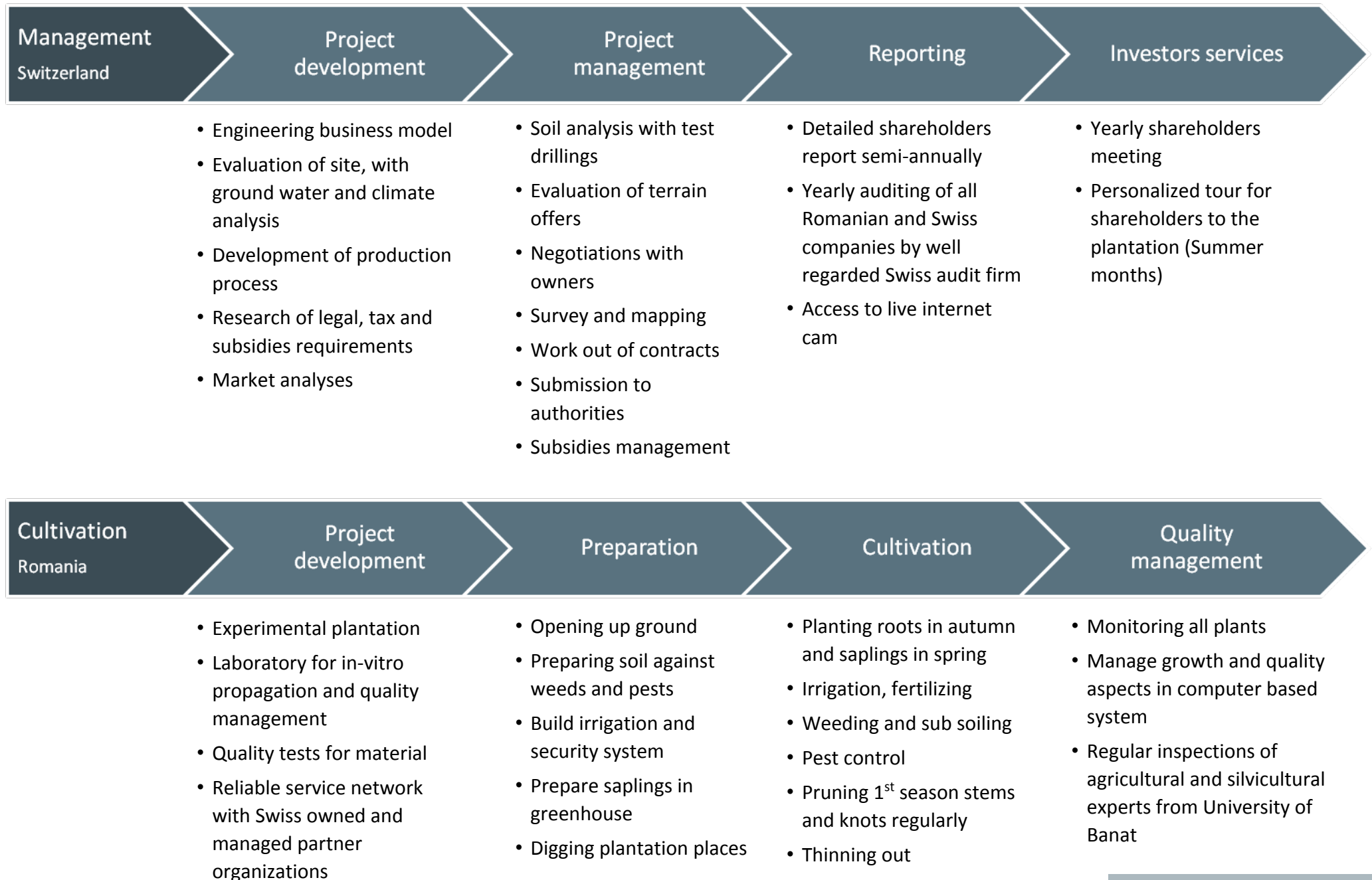
How we work – operational aspects

- We reject non sustainable business models
- Minimizing risk comes before maximizing profit (e.g. 40'000 m² of experimental plantation)
- Continuous quality management from in-vitro propagation laboratory to execution of customer orders
- Management is committed personally on site as well as financially
- Our partners for ground transaction, accounting and auditing in Romania are Swiss owned and managed companies
- Strategic cooperation with several departments of the Agricultural University of Banat since the very beginning

Intercropping Paulownia with saffron –
one of the experiments in progress



How we work – what we do for the owners



Five reasons for Paulownia

- Best thermal insulation and other unique physical characteristics of Paulownia wood
... such as lightness, very high auto-ignition temperature and virtually no warping
- Unmatched material for energy-efficient constructing (“aluminium of woods”)
... because of honeycombed instead of filamentous wood structure
- Highly positive ecological and social impact
... because the soil, ground water and air as well as the local economy benefit
- Creates precious jobs in rural regions
... because cultivation of fast growing noble wood is labor intensive and offers all year employment
- Minimal political, incident and financial risks
... because we work inside the EU, Paulownia plantations don’t catch fire and sale depends less on actual price changes (“store on the stump”)

Introducing Paulownia – the Princess tree*

Origin

- Actively cultivated in Chinese plantations for more than 2000 years
- Today, approximately 80 million m³ of standing wood in China
- Traditional wood in Asia for construction, furniture, musical instruments, veneers
- More recent use include interior panels for planes, yachts, trains and motor homes

Purpose

- Ornamental plant in European parks for 150 years
- Commercial plantations in Australia, New Zealand and USA since the 1980s
- Several hybrids allow cultivation from Finland to Spain (different growth speed)
- New opportunities for energy efficient high-tech constructions

Growth

Age (volume in solid m ³)	Height	Trunk diameter
Preseason 6 month	3 – 4 m	4 – 6 cm
1st year (restart from ground)	5 – 6 m	8 – 10 cm
3rd year (0.2 m ³)	8 – 10 m	16 – 20 cm
6th year (0.5 m ³)	12 – 15 m	30 – 40 cm
9th year (0.9 m ³)	15 – 18 m	40 – 55 cm

* named in the Western hemisphere after Anna Paulowna (1795 – 1865), Grand Duchess of Russia and Queen of the Netherlands



4 months old in 1st year



Dimensions Diameter ≥ 40 cm, straight log, height ≥ 12 m (8-10 years old), no wood knots

Weight Only 300 kg/m^3 – approximately 40% lighter than traditional timber

Fire Retardancy Ignition temp of 420°C plus, compared to 220°C for most other hardwood

Insulation Thermal 0.09 W/mK (λ) – best in class, additionally excellent acoustic insulation

Resistance Humidity resistant to decay and rotting; resistant against termites, worms etc.

Strength Bend. 43, elast. 5'000, compr. 35 N/mm^2 , hardness 1'330 N (Janka)

Shape Air drying in 30 days, stable without warping, cracking or splitting, shrinkage 1.7%

Texture Beautiful, light color, suitable to imitate other wood

Price Fair market value $\geq \text{USD } 600/\text{m}^3$ – business plan calculation base $\leq \text{EUR } 350/\text{m}^3$

Comparison - Paulownia vs other types of wood

	Paulownia (Princess Tree, Kiri)	Norway Spruce (Picea abies)	Beech (Fagus sylvatica)	Teak (Tectona grandis)
Distribution	Native to East Asia, also planted in Eastern USA, Australia and Southern Europe	Northern and Central Europe	Europe	Native to South Asia, also grown in plantations in other tropical regions
Tree Size:	12 – 20 m tall 0.6 – 1.2 m trunk diam.	35 – 55 m tall 1 – 1.5 m trunk diam.	30 – 40 m tall 1 – 1.5 m trunk diam.	30 – 40 m tall 1 – 1.5 m trunk diam.
Avg. weight (dried):	300 kg/m ³	430 kg/m ³	710 kg/m ³	655 kg/m ³
Elastic Modulus:	5,000 N/mm ²	9,700 N/mm ²	14,000 N/mm ²	12,300 N/mm ²
Shrinkage:	Radial: 2.4% Tangential: 3.9% Volumetric: 6.4%	Radial: 3.9% Tangential: 8.2% Volumetric: 12.1%	Radial: 5.7% Tangential: 11.6% Volumetric: 17.3%	Radial: 2.6% Tangential: 5.3% Volumetric: 7.2%
Min. ignition temperature	420°C	280°C	250°C	n.a.
Growth time (min. 40 cm trunk diameter)	8 to 10 years (plantation)	70 years	60 years	20 years (plantation)
Characteristics:	Being not a forest tree, comparatively little production. Virtually no branches, sleek, outstanding stability and isolation. Unsuitable for high static load or flooring.	Modest tree with sleek wood for a wide number of applications. High degree of non-usable product due to high proportion of resin and branches.	Heavy and very hard wood, easy to work on. Low stability when humidity levels vary. Popular fireplace wood.	Oil-bearing wood. Popular for garden furniture due to high resistance. Unsuitable for painting and gluing. Long transportation, over-exploitation if not FSC labeled.

Where we see the operational risks and what we think of them

Risks	Probability	Mitigating Factors
Climate and force majeure	Low	<ul style="list-style-type: none"> • Drought: own irrigation system fed by ground water • Cold: resistant to -25 °C • Wind: maximum squall speed 80 to 90 km/h due to distance to ocean and shield of Carpathian mountains • High water: rarely, trees can recover, evade troughs • Fire: negligible because clear of undergrowth • Vermin: very low vulnerability, fence against wild animals
Grounds	Low	<ul style="list-style-type: none"> • Fall in value: actual prices are around EUR 0.50/m² • Romanian government expects land prices to quadruple over the next 10 years • All transactions are supervised by a specialized crew with 20 years of local experience and by Swiss management • Quality: generally best soil in Europe • Comprehensive soil analysis in cooperation with the Agricultural University of Banat
Capital loss	Medium	<ul style="list-style-type: none"> • Theft: plantation to be guarded as soon as reasonable • Vandalism: almost unknown in Banat • Subsidies: rising EU funding for Eastern member countries • Merchandising risk: sale to established markets in Asia instead of specialized European wood processing industry • Management: 25 years of entrepreneurial expertise, board represents interests of investors